SASKATCHEWAN CALCULUS 30 · UNIT C · 25 QUESTIONS

Curve Sketching with Derivatives — Practice Test

This practice test was made by AI and there may be mistakes. If a question or answer looks wrong, use the Flag a mistake button to let Brett know so he can fix it.

1 **For $f(x) = x^3 - 108x$, the critical points occur at $x = \pm$**

ANSWER _____

Understand It with Pulse | Flag a mistake

2 **The function $f(x) = x^3 - 27x$ has a local maximum at $x = -3$. The value of the function there is**

ANSWER _____

Understand It with Pulse | Flag a mistake

3 **For $f(x) = x^2 - 12x$, the critical point occurs at $x =$**

ANSWER _____

Understand It with Pulse | Flag a mistake

4 **For $f(x) = x^3 - 75x$, the critical points occur at $x = \pm$**

ANSWER _____

Understand It with Pulse | Flag a mistake

5 **For $f(x) = x^2 + 8x$, the critical point occurs at $x =$**

ANSWER _____

Understand It with Pulse | Flag a mistake

6 **If f''(x) is negative on an interval , then f is**

A concave down on that interval

B concave up on that interval

C increasing on that interval

D decreasing on that interval

Understand It with Pulse | Flag a mistake

7 **If f'(x) is positive on an interval , then f is**

- **A** decreasing on that interval
- **B** increasing on that interval
- **C** constant on that interval
- **D** concave down on that interval

Understand It with Pulse | Flag a mistake

8 **For $f(x) = x^3 - 147x$, the critical points occur at x = ±**

ANSWER _____

Understand It with Pulse | Flag a mistake

9 **For $f(x) = x^2 - 2x + 5$, the minimum value of the function is**

ANSWER _____

Understand It with Pulse | Flag a mistake

10 **The function f(x) = x² - 6x + 5 has its lowest point at x =**

ANSWER _____

Understand It with Pulse | Flag a mistake

11 **For f(x) = x² + 6x , the critical point occurs at x =**

ANSWER _____

Understand It with Pulse | Flag a mistake

12 **A local maximum of a function occurs where the derivative changes from**

A negative to positive

B positive to positive

C positive to negative

D negative to negative

Understand It with Pulse | Flag a mistake

13 **The function $f(x) = x^3 - 12x$ has a local maximum at $x = -2$. The value of the function there is**

ANSWER

Understand It with Pulse | Flag a mistake

14 **The function $f(x) = x^3 - 3x$ has a local maximum at $x = -1$. The value of the function there is**

ANSWER

Understand It with Pulse | Flag a mistake

15 **For $f(x) = x^3 - 3x$, the local maximum value is**

ANSWER

Understand It with Pulse | Flag a mistake

16 **The derivative f'(x) is positive on the interval (2, 5) and negative on (5, 8). At x = 5, the function f has a**

- A local maximum
- B local minimum
- C point of inflection
- D vertical asymptote

Understand It with Pulse | Flag a mistake

17 **The function f has a horizontal tangent at x = 4. The value of f'(4) is**

ANSWER _____

Understand It with Pulse | Flag a mistake

18 **The lowest value taken by $f(x) = x^2 + 10x$ is**

ANSWER _____

Understand It with Pulse | Flag a mistake

19 For $f(x) = x^2 - 14x + 5$, the minimum value of the function is

ANSWER _____

Understand It with Pulse | Flag a mistake

20 If $f''(x)$ is positive on an interval, f is

A concave up on that interval

B concave down on that interval

C a straight line

D decreasing on that interval

Understand It with Pulse | Flag a mistake

21 The function $f(x) = -x^2 + 4x$ has a local maximum at x =

ANSWER _____

Understand It with Pulse | Flag a mistake

22 **The curve $y = x^3$ has an inflection point at $x =$**

ANSWER _____

Understand It with Pulse | Flag a mistake

23 **For $f(x) = x^2 - 4x + 5$, the minimum value of the function is**

ANSWER _____

Understand It with Pulse | Flag a mistake

24 **A farmer has 40 metres of fence to make a rectangular pen against a barn wall, using the wall for one side. The width that gives the largest area is, in metres,**

ANSWER _____

Understand It with Pulse | Flag a mistake

25 **The function $f(x) = x^2 - 8x + 7$ is decreasing on the interval**

A x less than 4

B x greater than 4

C x less than 0

D all x

Understand It with Pulse | Flag a mistake

ANSWER KEY

1.	6	**10.**	3	**19.**	-44
2.	54	**11.**	-3	**20.**	A
3.	6	**12.**	C	**21.**	2
4.	5	**13.**	16	**22.**	0
5.	-4	**14.**	2	**23.**	1
6.	A	**15.**	2	**24.**	10
7.	B	**16.**	A	**25.**	A
8.	7	**17.**	0		
9.	4	**18.**	-25		

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